

RELATIONSHIP BETWEEN SOCIO-ECONOMIC CHARACTERISTICS OF FARMERS AND UTILIZATION OF AGRICULTURAL EXTENSION INFORMATION IN RURAL AREAS OF NIGERIA

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ABSTRACT

This study investigated the relationship between farmers' socio-economic characteristics (independent variables) and utilization of extension information (dependent variable). A total of 125 respondents were purposively and randomly sampled from two Local Government areas of Kaduna State, Nigeria. The data received were decoded and analyzed with the aid of Statistical Packages for Social Science (SPSS). The socio-economic characteristics of the respondents identified were; age, farmer's awareness, level of education, extension visits, access to radio, social participation and farm size. Pearson's correlation matrix results established positive and significant relationship between farmer's socio-economic characteristics and utilization of extension information. Further result of Pearson's Step-wise linear regression analysis showed that farmers' awareness and access to radio were statistically significant at 5% probability level, having effects on utilization of extension information.

KEYWORDS: Relationship, utilization, extension information, socio-economic characteristics, Nigeria.

INTRODUCTION

Adoption of extension recommendations and farm practices has always been an uphill ask to farmers in general and a bane of the rural farmers in particular. Despite various efforts being exerted by the Governments, non-Governmental organizations and independent agencies in providing intervention activities to rural farmers, it has become obvious, over the years, that some socio-economic characteristics of farmers play significant role towards influencing their adoption or non-adoption of recommendations on improved farm practices.

It could be observed that farmers in Nigeria, irrespective of gender status, are often faced with the problem of inadequate modern extension information which they needed so badly for the day-to-day carrying out their farming activities. It is rather unfortunate that not all of them may have access to myriads of useful extension information available, not to talk of the seemingly questionable proportion of them who may not have the means of putting information acquired into practice. This is the frustration faced by the rural farmers.

McAnany (1980) reported the phenomenon with simply making more information available in rural areas and that the rural poor are noted for their high level of illiteracy. Hence, the report concluded that the poor may be limited by not having the ability to take advantage of new information.

Extension information may emanate from an innovation, research technique, technology and farming practices. Rogers and Shoemaker (1971) defined communication as "the process by which messages are transferred from a source to a receiver". Lack of information could pose as hindrance to farmer's effective performance and productivity. Yomi-Alfred (2005) stressed the vital role of extension information to credit acquisition and utilization by farmers. Hence, the role of extension information in farmers' performance cannot be over-emphasized. Tologbonse *et al.*, (2005) had identified lack of adequate information as one of

the constraints to adoption of crop protection recommendations by sesame farmers. Adebayo (2005) reported communication as among the factors of explanatory variables on adoption studies in Nigeria. In similar vein, the usefulness of agricultural information transcends gender boundary as Banmeke and Olowu (2005) elaborated on the series of technical, economic and legal information needed by women farmers.

Maize (*Zea mays* L.) is a crop widely grown and consumed by many people and animals all over the world. It is cultivated by many in Africa, West and Central Africa, and Nigeria inclusive. Research on maize has been long and was virtually pioneered in Nigeria by the Institute for Agricultural research (IAR), Samaru, Ahmadu Bello University (ABU), Zaria, and some significant progress have been made. IAR has been able to develop and release improved maize varieties adoptable to high altitude areas of northern Guinea savanna which could yield up to 50% more than the land races (local varieties). In addition and IAR and IITA, through joint research and collaboration have developed and released hybrid maize which can yield between 6-8 t/ha⁻¹ in the savanna ecological zones of Nigeria (Fadiji *et al.*, 1996). Research efforts by IITA, Ibadan have made notable improvement in maize research and adoption in both forest zones and savanna regions of Nigeria and West Africa (Kim, 1995). In a study on major food crops trends in yield/ha (kg/ha) from 1986-1996, it has been shown that maize percentage growth rate (cumulatively) has been up to 8% while adoption rate was in the range of 40-48% within Nigeria (NAERLS, 1997; Shaibu *et al.*, 1997).

Yields of improved maize varieties under controlled conditions in research field can produce as much as 3-5 t/ha⁻¹ of grain within forest region and 4-6 t/ha⁻¹ in the savannah region (Carsky and Kling, 1995). Besides, in other regions of the world, the yield of about 5-10 t/ha⁻¹ have been reported (Vassal *et al.*, 1995; Pungali and Pandey, 2000).

The three objectives of the study were to;

- (a) describe the socio-economic characteristics of rural farmers
- (b) ascertain the relationship between the socio-economic characteristics of farmer and utilization of extension information, and
- (c) determine the effect of socio-economic characteristics of farmers and utilization of extension information.

METHODS

This village study was conducted in Kaya and Dan-Ayamaka (both were located in Giwa and Kudan Local Government Areas, respectively of Kaduna State, Nigeria). The two villages are situated in the Guinea savannah vegetation zone. Agriculture forms the main occupation (constituting about 70%) of the working populations in the two villages. Farming is basically traditional with emphasis on cultivation of such crops as maize, sorghum, cowpea, yam, rice, millet and groundnut. The two villages were considered to be promising for extension purpose. In fact, they had experienced some intervention or the other over the years.

According to 1991 Nigerian Population figure (1996), the population of Kaya and Dan-Ayamaka were put at 5,530 and 680. For this study, a sample frame of 910 registered farmers was identified from the two villages, out of which 420 grew improved maize. Based on their population figure, 75 and 50 respondents (making a total of 125) were randomly selected for this study from Kaya and Dan-Ayamaka respectively. They were interviewed by trained enumerators using pre-tested structured questionnaire followed-up with interview. The primary data received were decoded, analyzed and interpreted accordingly.

Measurement of variables:

In order to get the needed data from the respondents, some socio-economic characteristic of farmers were classified as independent variables while utilization of extension information by the respondents, was classified as the dependent variable.

Dependent variables: The dependent variable isolated in this study was utilization of extension information. This was calculated on four-point scale as follows; frequently (3), occasionally (2) rarely (1) and never (0).

Independent variables:

The independent variables were measured as follows;

Age: The farm's age was defined and computed as the actual age of the respondent as at the date of the interview.

Farmers' awareness: This was measured using Yes (1) or No (0) point scale.

Level of education: The respondents' level of education was measured based on the total number of years spent in school (s).

Extension visits: This refers to the frequency of extension staff to the respondents. This was apportioned scores as follows; Very frequently (3), Frequently (2), Not frequently (1) and Never (0).

Access to radio: This refers to the personal access of the respondent to a radio set. If he has access he was given 1 score, if not, he was given 0.

Social participation: Six social activities/groups were listed for the respondents, namely; Attendance of farmers' council meeting, General meeting, Field days, Agricultural shows, Festivals, and Farmers' Cooperative group. Each of these was apportioned 1 mark, and the summation was made for each respondent on the number of activities he participates in.

Data analysis: The primary data was analyzed using both descriptive and inferential statistics. Descriptive statistics was used to achieve the objective of describing the socio-economic characteristics of rural farmers cultivating improved maize production. For inferential statistics, Pearson's correlation matrix and Pearson's Step-wise linear regression analyses were used, with the aid of Statistical Package for Social Science (SPSS 9.0) in order to achieve objectives 2 and 3.

RESULTS AND DISCUSSION

Description of the socio-economic characteristics of improved maize rural farmers

Table 1 represents the results of personal and socio-economic characteristics of the respondents.

Age: The average age of the farmers was 41; with 14% of them in the age bracket 21-30, 47% in the 31-40, 40% in the 41-50, 19% in the 51-60 and remaining 5% in above 60 years.

Extension visits: The Majority (43.2%) of the respondents have extension visits seasonally, 21.6% yearly, 13.6% bi-weekly, 10.4% bi-monthly, 7.2% monthly and 4% weekly. This indicates a poor performance in extension visits delivery to the respondents.

Access to radio: Majority of the respondents (92.8%) had access to radio while only 7.2% had no access. This is an impressive situation which corroborates earlier reports of Yazidu (1971), and Voh (1973) and Chikwendu *et al.*, (1996) who stressed on the importance of radio as a source of information to farmers.

Farm size (ha): Majority of the respondents (70.4%) had 1-2.9ha, 20.8% had less than 1 ha, 8% had 3-6 ha and only 0.8% had greater (>) than 6ha.

Farmers' awareness: Interestingly, all the respondents (100%) were aware of the recommended farm practices on maize.

Level of education: Majority (69.6%) of the respondents did not go to school, 1.6% had 1 year, 2 years and greater than (>) 6 years of schooling, 3.2% had 3 years, 4% had 4 years, 4.8% had 5 years, and 13.6% had 6 years.

Social participation: Based on the total number of social activities/groups the respondents engaged in, the results show; 60% were involved in 2 activities, 25.6% in 3 activities, 8% in 1 activity, 5.6% in 4 activities, 0.8% in 6 activities and none (0) in 5 activities.

Farmer's awareness: All the respondents (100%) were aware of the selected recommended farm practices. This is an impressive performance as far as farmers' enlightenment of farm practices was concerned.

Relationship between socio-economic characteristics of farmer and utilization of extension information.

Based on the objective of this study, results of Pearson's correlation matrix analysis showed that there was a relationship between farmers' socio-economic characteristics and their utilization of extension information (Table 2). The background problem to this study was establishing relationship between socioeconomic characteristics of farmers and utilization of extension information.

Result of correlation between farm size and utilization of extension information shows that it was significant at 1% level. This might be attributed to increase in farm size leading to utilization of extension information. Result of correlation between level of education and utilization of extension information shows that, at 5% level of significance, were positively correlated. This could imply that level of education has positive influence on the farmers' utilization of extension information which means that as farmer tend to improve I the level of education they tend to utilize more of extension information.

Result of correlation between farmers' awareness and utilization of extension information shows that it was significant at 5% level. Hence, the more awareness a farmer, it is assumed, the more he would be able to utilize extension information. Interestingly again, the result of correlation between access to radio and utilization of extension information shows it was significant at 1% level probably because radio exerted considerable measure of impact on respondents in utilizing more of extension information. This finding agrees with reports of usefulness of radio in the rural areas as a means of getting information (Tabing, 2002 and Chapman *et al.*, 2003). Consequently, this study upholds that some socio-economic characteristics of farmers have positive and significant relationship with utilization of extension information. This position is therefore in support of earlier works as reported by Atala (1988), Matanmi (1991) and Ajia (1992).

Effects of socio-economic characteristics of farmers on utilization of extension information

The third objective of this study was to examine the effect of some socio-economic characteristics of farmers on Utilization of Extension Information (adoption). Using Pearson's step-wise linear regression matrix, it was found that both farmers' awareness and access to radio were significant determinants of Utilization of Extension Information at 5% level of significance (Table 3). Hence, both characteristics of farmers were effective in influencing positively and significantly the Utilization of Extension information among the respondents.

Access to radio: The regression coefficient of access to radio was significant. The farmers' utilization of extension information index was therefore positively related to access to radio. Hence, the more access the farmers have to radio, the more propensities they have to use more of extension information at their disposal. This finding further corroborates reports of Yazidu (1973), Voh (1981) and Ajia (1992) which stressed the importance of radio as a source of agricultural information and adoption.

Farmers' awareness: The coefficient of the respondents was significant. In this regard, the utilization of extension information index was positively related to farmers' awareness. The result therefore indicates that the more awareness the farmers have the propensity to utilize extension information. The foregoing findings tallies with Matthews-Njoku (2003) which reported significant relationship between farmers'

knowledge about improved cassava production technologies and adoption. Also, this finding supports Tologbose *et al.*, (2005) reported importance of information source(s) in creating farmers' awareness of crop protection technologies and their likelihood to adopt it. However, this finding differs a little with Agwu (2004) which reported that farm size and formal education were variables that influenced cowpea technology adoption.

Consequently, these two variables (farmers' awareness and access to radio) could be considered important in predicting farmers' behaviours in utilization of extension information. Besides, the two variables largely, combined with other variables, explain 44% of the variation in utilization of extension information.

However, five other characteristics of farmers were found not significantly related to Utilization of Extension Information. They were; level of education, extension visits, social participation, farm size, and farmers' age.

Level of education: Level of education was not found to be significant determinant in utilization of extension information in this study. This is probably due to poor low level of the respondents' education. From table 1, it shows that majority of the respondents (69.6%) did not go to school. Hence, illiteracy is a factor that impairs use of extension information by the rural farmers.

Extension visits: The non-significance of extension visits in utilization of extension information might be attributed to poor frequency of visits received by the respondents as indicated in table 1. For, most of them (29.7% and 14.8%) had extension visits seasonally and yearly, respectively. Moreover, this finding disagrees with Obeta and Nwagbo (1991) which found extension contact as strong determinant of adoption.

Social participation: The results further show that social participation was not significant to utilization of extension information. This situation could be attributed to the indications from table 1 which shows that the majority of the respondents (60%) participated only in 2 out of 6 activities listed. Consequently, this low level of social participation would constitute lack of exposure of the farmers. It is however not sufficient to belong to many social groups, the most important factor is the impact of groups in exerting positive influence on farmers' utilization of information and adoption.

Farm size: Farm size was not significant to the respondents' utilization of extension information. Table 1 shows that majority (70.4%) of them have 1-2.9 ha of farm size which could translate to the fact that their farm size was not increasing proportionately to influence their use of extension information.

Age: The age of the respondents was not found to be significant in utilization of extension information. This implies that the older farmers utilized less of extension information. Invariably, it means that the younger farmers utilized more of the extension information at their disposal probably due to their youthful exuberance and tendency for adventure. This result corroborates the findings of Voh (1979) and Chikwendu *et al.*, (1996) which reported that older people tend to be risk averse compared with the younger ones.

CONCLUSION(S)

The following conclusions have emerged from this study;

- 1) This study has established that a positive relationship exists between socio-economic characteristics of farmers and the Utilization of Extension Information. Consequently, it could safely be concluded that the more the improvement in the farmers' socio-economic characteristics, the more they tend to adopt the technologies and recommendations they get through the extension information.
- 2) It has also been established, through this study, that farmers' awareness and access to radio significantly correlated to Utilization of Extension Information. This further translates to the fact

- 3) that awareness by farmers and their access to radio are important socio-economic variables that can affect farmers' Utilization of Extension Information cum adoption, in the rural areas.
- 4) The study further shows that out of seven selected variables, five were not significantly related to utilization of extension information among the maize farmers. The characteristics are farmers' age, social participation, extension visits, level of education and farm size.
- 5) That adequate enlightenment campaign should be carried out by stakeholders in extension on maize crop especially towards making maize farmers adopt more of the technologies on maize.

RECOMMENDATIONS

Some recommendations have been derived from this study, namely;

- 1) In view of the fact that there is positive and significant effect of farmers' socio-economic characteristics on utilization of extension information, it is advisable for Government (at all tiers) to strive hard toward improving the livelihood of the rural farmers and people.
- 2) Awareness of farmers and access to radio play dominant role in the utilization of extension information among rural farmers. Hence, policy makers are advised to facilitate efforts to improve and sustain farmers' awareness level and access to radio as far as adoption of improved technologies is concerned.
- 3) That concerted efforts be geared by stake-holders (e.g. Governments, extension staff, researchers, produce marketers, industrialists) to assist farmers in getting adequate enlightenment which could directly assist them in getting aware of farm practices and adopt them.
- 4) Those socio-economic characteristics of farmers should be improved upon so that they can also significantly contribute to Utilization of Extension Information, and indeed, adoption of recommended farm practices.

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Table 1: Demographic representation of the socio-economic characteristics of the respondents (n=125)

Socio-economic characteristics of the respondents	Frequency (f)	Percentage (%)
Age (years)		
21-30	14	11.2
31-40	47	37.6
41-50	40	32
51-60	19	15.2
Above 60	5	4
Total	125	100
Level of education (years)		
0	87	69.6
1	2	1.6
2	2	1.6
3	4	3.2
4	5	4
5	6	4.8
6	17	13.6
Above 6	2	1.6
Total	125	100
Access to radio		
Yes	116	92.8
No	9	7.2
Total	125	100
Farmers' awareness		
Yes	125	100
No	0	0
Total	125	100
Farm size (ha)		
< 1	26	20.8
1-2.9	88	70.4
3-6	10	8
>6	1	0.8
Total	125	100
Extension visits:		
Yearly	27	21.6
Seasonally	54	43.2
Bi-monthly	13	10.4
Monthly	9	7.2
Bi-weekly	17	13.6
Weekly	5	4
Total	125	100
Social participation (No of activities/groups)		
1	10	8.0
2	75	60
3	32	25.6
4	7	5.6
5	0	0
6	1	0.8
Total	125	100

Table 2: Pearson's correlation matrix analysis of the relationship between farmers' socio-economic characteristics and utilization of extension information.

Variable	Ya	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇
	Utilization of Extension Information	Age	Farm size	Level of Education	Ext. visits	Social Part.	Farmers' awareness	Access to Radio
Utilization of Extension Information	1.00							
Age	-.038** (.677)	1.00						
Farm size	.246** (.006)	.320** (.000)	1.00					
Level of education	.178* (.047)	-.313** (.000)	.146 (.104)	1.00				
Extension visits	-.164 (.068)	-.039 (.670)	-.159 (.076)	.028 (.753)	1.00			
Social part.	-.015 (.871)	.030 (.742)	.098 (.279)	.312** (.000)	.229* (.010)	1.00		
Farmers' awareness	.596** (.000)	-.063 (.069)	.234** (.009)	.151 (.093)	-.057 (.530)	-.120 (.182)	1.00	
Access to radio	.431** (.000)	-.345** (.000)	.206* (.021)	.163 (.069)	-.048 (.597)	.118 (.189)	.344** (.000)	1.00

* = indicates correlation was significant at 5% level, ** = indicates correlation was significant at 1% level, Values in brackets () indicates probability level.

Table 3: Pearson's step-wise linear regression of the effect of Utilization of Extension information on some socio-economic characteristics of respondents.

Variable	Regression coefficient (R)	Standard error	t-value	Level of significance
Age	5.1261	.023	2.215	.792
Level of education	.119	.074	1.607	.228
Extension visits	-6.991	.110	-.635	.135
Social participation	-8.1741	.288	-.284	.741
Access to Radio	2.898	.771	3.759	.000**
Farmers' awareness	1.492	.234	6.385	.000**
Farm size	-.111	.187	-.592	.973

** = Regression was significant at 5% level, $R^2 = 0.444$; R^2 adjusted=0.405; $F = 11.552$; [$P < 0.05$].

Received for Publication: 23/08/2009

Accepted for Publication: 12/10/2009

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